NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(Pursuant to NAC 445A.874)

Permittee Name: **TMWA Silver Lake ASR** Type of Project: **Aquifer Storage & Recovery**
Project Name: **Silver Lake ASR** Address: **1355 Capital Blvd.**
Permit Action: **UIC Permit** **Reno, NV 89520**
Permit Number: **UNEV99209** Injection Wells (#): **Four (4)**

A. Description of Injection wells

Location: Four (4) injection wells, located in Sections 18, 19 and 30, T.21N., R.19 E., M.D.B.&M., Washoe County, Nevada.

Latitude 39° 40' 30"; Longitude 119° 53' 50"

Table 1 – Well Table

Well Name/No.	Formally Known As	Total Depth
Air Army Guard (AAW)	Silver Lake Well # 1	840’
Silver Lake Replacement (SW2)	Replaced Silver Lake Well #4 (SL#4 now a MW)	682’
Silver Knolls(SKW)	Silver Lake Well # 2	900’
Red Rock (RRW)	Silver Lake Well # 3	840’

Injectate Characteristics: All injectate is treated (filtered and chlorinated) surface water from the Truckee River which has passed through one of the utility's treatment plants. The average TDS of the injectate is approximately 70 to 90 mg/l and meets all other drinking water standards.

Receiving Water Characteristics: Based on data from SLW #1 and SLW #4, the receiving waters currently meet all drinking water standards and have a TDS in the 200 mg/l range and pH values from 8.0 -8.2. Other values include total alkalinity = 111-131 mg/l, sulfate = 27-33 mg/l, calcium = 26-35 mg/l, sodium = 20-25 mg/l, nitrate <2.0 mg/l. The wells have slightly elevated levels of arsenic. SLW#4 has a reported arsenic value of 0.010 mg/l. In anticipation of new, stricter, drinking water standards for arsenic, Sierra Pacific has been examining ways to reduce these values with injected water. Extensive analysis of the receiving waters for regulated and unregulated organic constituents has failed to show any organic contamination in the deeper aquifer.

B. Synopsis

Truckee Meadows Water Authority (TMWA) recharges, stores and recovers water underground to: increase storage; for drought supply; for plant flexibility, and emergency and peak demand use. TMWA is authorized in inject Truckee River Water which is treated at either the Glendale or Chalk Bluff water treatment plants and meet drinking water standards. TMWA is currently permitted to inject treated water into Air Army Guard (AAW) and Silver Lake Replacement Well. Silver Knoll and Red Rock Wells are to be permitted with the 2008 renewal. Injection is conducted seasonally during the fall and winter months.

The original permit was issued in 2000 to Sierra Pacific Power Company (SPPC) and permitted injection into Silver Lake Well #1 (now AAW) and Silver Lake Well #4, which was replaced by Silver Lake Replacement Well in June 2006. The original Silver Lake Well #4 has since been converted to a monitoring well. This water system was originally run by SPPC however in November 2000; TMWA acquired the water division from SPPC. TMWA has sense been the permittee for the Silver Lake Recharge Project.

The project area is within the interior draining, closed, Lemmon Valley Basin. Groundwater is hosted by alluvial deposits and lake-bed sediments comprised of sand, silt and clay lenses. The approximate injection intervals are between 200 feet and 800 feet below ground surface (bgs). Historical water levels at Silver Lake Well #1 (SLW #1) and Well #4 (SLW #4) are at 80 bgs and 60 bgs, respectively. These wells tap a semi-confined aquifer, separated from a shallow aquifer by cemented sand and/or silty clay beds. Groundwater flows northwestwardly, with a variable, possibly fault-controlled hydraulic gradient. The gradient is approximately .004 near SLW #4. The shallow and deeper aquifers have fairly high hydraulic conductivities-- with an average historical hydraulic conductivity of 12 ft/day being reported from test wells east of SLW#4.

In the original application, SPPC stated that a pumping cone of influence from each well extends laterally outward a distance greater than one mile. Several reports suggested a natural downward vertical flow, or leakage, between the upper unconfined aquifer and the deeper semi-confined zone. Thus, a component of downward vertical leakage would most likely exist during pumping and an upward one could occur during recharge periods. While horizontal groundwater flow dominates, vertical groundwater flow should be a factor to consider during recharge, as to how it might affect the existing groundwater contamination plume located east of SLW#4. The hydrodynamics of the recharge influence on the plume are further complicated by the continued pumping from the same wells.

Groundwater contamination, called the Stead Solvent Site, was comprised of solvents and their daughter products (including tetrachloroethylene, or PCE, and trichloroethylene, or TCE), and petroleum hydrocarbons. These constituents exceeded Federal and State action levels and the site is listed with the Divisions Bureau of Corrective Actions. Remediation was conducted. The site is located on the former Stead Air Force Base, and has a complex contaminant history originating from military-associated industrial activities and post-base-closure activities. The contamination consisted of a series of plumes from several sources. Overall, the leading edge of the plumes is about 2000 feet away from the production well, and the estimate of the travel time to the production well is between 50 and 70 years. The two proposed injection wells are expected to have no interaction with the Stead Solvent Site because their location is further away than that of the existing wells. The Silver Lake Recharge has been in operation with the closest wells being the AAW and SW2 which will still be the closest wells to this contamination site and no negative impact have been reported.

C. Procedures for Public Comment

The Notice of the Division's intent to renew the permit authorizing the facility to discharge to the ground water of the State of Nevada subject to the conditions contained within the permit was sent to the Reno Gazette Journal for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on

the proposed permit can do so in writing for a period of 30 days following the date of the published public notice.

The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

D. Proposed Determination

The Division has made the tentative determination to reissue the proposed permit.

E. Proposed Injectate Limitations and Special Conditions

Refer to **Part I.A** of permit.

F. Rationale for Permit Requirements

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime. Verification will be performed to ensure that injected fluid quality remains constant and meets drinking water standards. In particular, NDEP is concerned that recharge projects do not create chlorinated organics in the ground water due to the chlorination treatment of injected water.

Prepared by: Russ Land

Revised by: Brian Martinezmoles
Date: July 9, 2008

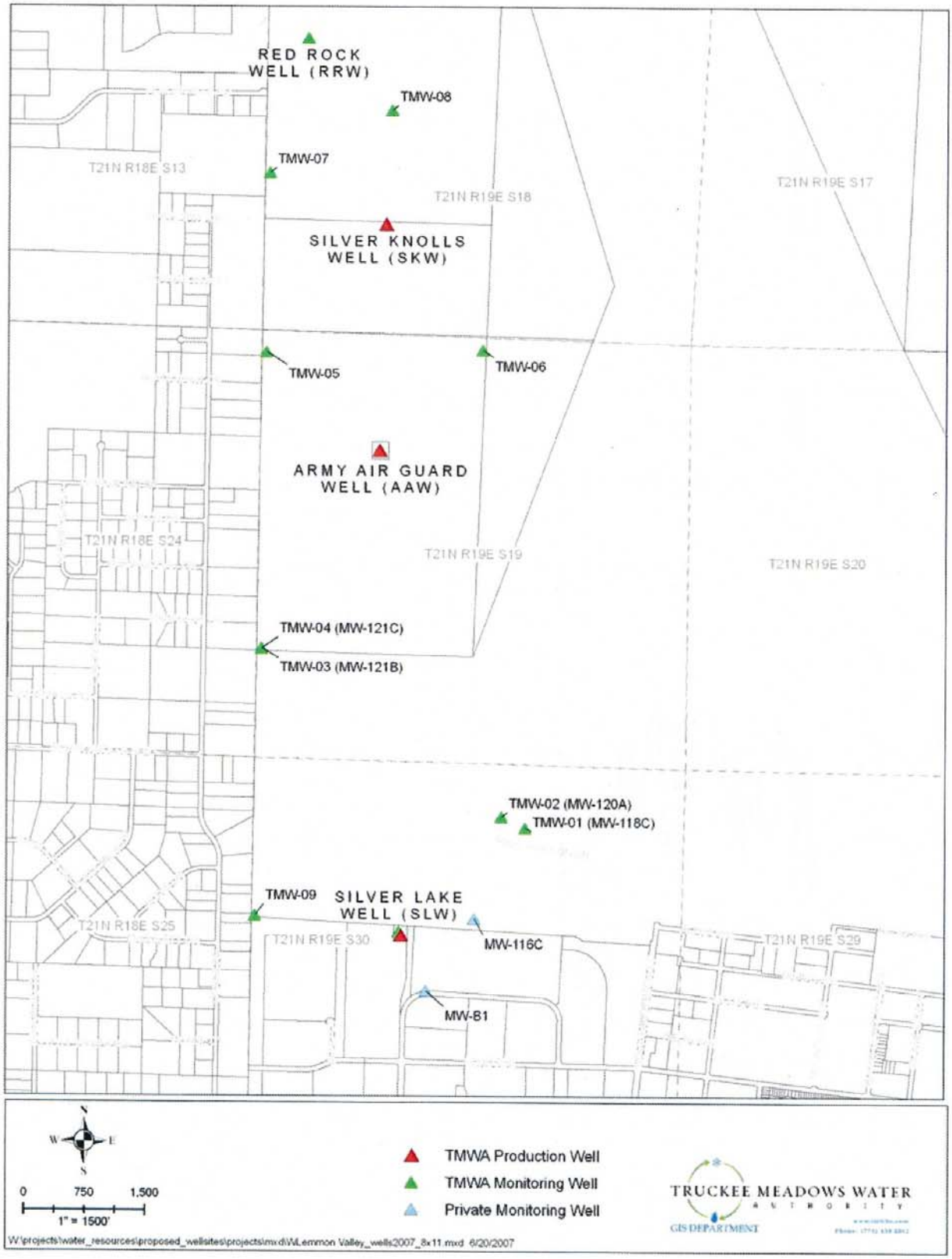

Figure 1. Well Locations, West Lemmon Valley Basin